CLAIMS:

1. An electroluminescent device comprising:

a layer of electroluminescent material comprising:

a ceramic oxide host compound; and

one or more metal oxide dopant compounds which form a solid solution with the ceramic oxide host compound;

at least one barrier layer contacting the layer of electroluminescent material to inhibit chemical reaction of the electroluminescent material, wherein the barrier layer comprises a low reactive material that is stable at high temperature;

a transparent conductive oxide layer;

a ground plane, wherein the transparent conductive oxide and the ground plane are disposed on opposite sides of the electroluminescent material; and

an electric field generator electrically connected to the conductive oxide layer and the ground plane for generating an electric field.

2. The electroluminescent device according to claim 1, further comprising a dielectric layer disposed between the layer of electroluminescent material and the ground plane.

3. The electroluminescent device according to claim 2, wherein the dielectric layer comprises a titanate compound.

4. The electroluminescent device according to claim 3, wherein the titanate compound is barium titanate ($BaTiO_3$).

5. The electroluminescent device according to claim 3, wherein the titanate compound is strontium barium titanate ($Sr_xBa_{(1-x)}TiO_3$).

6. The electroluminescent device according to claim 1, wherein the ceramic oxide host compound comprises two or more metal oxide compounds and wherein at least one of the metal oxide compounds is ZrO_2, Ga_2O_3, GeO_2, SiO_2, SnO_2, or PbO_2.

7. The electroluminescent device according to claim 6, wherein the ceramic oxide host compound comprises GeO_2 and one or more oxides selected from ZrO_2, SiO_2, Al_2O_3, Y_2O_3, ZnO, MgO, CaO, and SrO.

8. The electroluminescent device according to claim 6, wherein the ceramic oxide host compound comprises ZrO_2 and one or more oxides selected from GeO_2, and Ga_2O_3, and SrO.

9. The electroluminescent device according to claim 6, wherein the ceramic oxide host compound comprises SiO_2 and one or more oxides selected from ZnO and Y_2O_3.

10. The electroluminescent device according to claim 7, wherein the ceramic oxide host compound comprises GeO_2 and ZnO, and wherein the metal oxide dopant is HfO_2.

11. The electroluminescent device according to claim 7, wherein the ceramic oxide host compound comprises GeO_2, SrO, and ZnO, and wherein the metal oxide dopant is MnO_2.

12. The electroluminescent device according to claim 7, wherein the ceramic oxide host compound comprises GeO_2 and MgO, and wherein the metal oxide dopant is MnO_2.

13. The electroluminescent device according to claim 7, wherein the ceramic oxide host compound comprises GeO_2 and CaO, and wherein the metal oxide dopant is MnO_2.

14. The electroluminescent device according to claim 7, wherein the ceramic oxide host compound comprises GeO_2 and Y_2O_3, and wherein the metal oxide dopant is Dy_2O_3.

15. The electroluminescent device according to claim 8, wherein the ceramic oxide host compound comprises ZrO_2 and GeO_2, and wherein the metal oxide dopant is MnO_2.

16. The electroluminescent device according to claim 8, wherein the ceramic oxide host compound comprises ZrO_2 and Ga_2O_3, and wherein the metal oxide dopant is MnO_2.

17. The electroluminescent device according to claim 8, wherein the ceramic oxide host compound comprises ZrO_2 and GeO_2, and wherein the metal oxide dopant is SnO_2.

18. The electroluminescent device according to claim 9, wherein the ceramic oxide host compound comprises SiO_2 and ZnO, and wherein the metal oxide dopant comprises MnO_2, Al_2O_3, and As_2O_3.

19. The electroluminescent device according to claim 9, wherein the ceramic oxide host compound comprises SiO_2, ZnO, and Y_2O_3, and wherein the metal oxide dopant is Dy_2O_3.

20. The electroluminescent device according to claim 9, wherein the ceramic oxide host compound comprises SiO_2, ZnO, GeO_2, and Al_2O_3 and wherein the metal oxide dopant is MnO_2.

21. The electroluminescent device according to claim 1, wherein the ceramic oxide host compound comprises La_2O_3, SrO, and Ga_2O_3, and the metal oxide dopant compound comprises Eu_2O_3.

22. The electroluminescent device according to claim 1, wherein the ceramic oxide host compound comprises multiple metal oxides to provide a crystal structure that is compatible with the one or more dopant compounds.

23. The electroluminescent device according to claim 1, wherein the ceramic oxide host compound is a solid solution of multiple metal oxide with a band gap ranging from about 1 eV to 4 eV.

24. The electroluminescent device according to claim 1, wherein the metal oxide dopant compound is selected from MnO_2, SnO_2, HfO_2, Al_2O_3, Dy_2O_3, As_2O_3, Eu_2O_3, and mixtures thereof.

25. The electroluminescent device according to claim 1, wherein the dopant is present in the host at an amount in the range from about 0.002 mole % to 0.1 mole %.

26. The electroluminescent device according to claim 1, wherein the metal oxide dopant compounds are selected to provide acceptor and donor sites within the ceramic oxide host compound.

27. The electroluminescent device according to claim 1, wherein the barrier layer comprises a metal oxide.

28. The electroluminescent device according to claim 1, wherein the barrier layer comprises tantalum oxide (Ta_2O_5).

29. The electroluminescent device according to claim 1, wherein the barrier layer comprises alumina.

30. The electroluminescent device according to claim 1, wherein the barrier layer comprises zirconia.

31. The electroluminescent device according to claim 1, wherein the barrier layer is calcium oxide, magnesium oxide, or a rare earth oxide.

32. The electroluminescent device according to claim 1, wherein the layer of electroluminescent material is deposited as a dense thin film.

33. The electroluminescent device according to claim 1, wherein the layer of electroluminescent material is deposited as a dense thin film having a thickness less than about 1 micron.

34. The electroluminescent device according to claim 32, wherein the electric field generator is configured to produce a voltage in the range from about 100 volts to 500 volts.

35. The electroluminescent device according to claim 1, wherein the layer of electroluminescent material is deposited as a thick film.

36. The electroluminescent device according to claim 1, wherein the layer of electroluminescent material is deposited as a thick film having a thickness greater than about 1 micron.

37. The electroluminescent device according to claim 35, wherein the electric field generator is configured to produce a voltage in the range from about 5,000 volts to 20,000 volts.

38. The electroluminescent device according to claim 1, wherein the electric field generator is configured to produce an electric field having a frequency greater than about 60 Hz and tuned to a resonance unique to the electroluminescent device.

39. The electroluminescent device according to claim 1, wherein the transparent conductive oxide is indium tin oxide.

40. The electroluminescent device according to claim 1, wherein the transparent conductive oxide is zinc oxide doped with gallium or zinc oxide doped with aluminum.

41. The electroluminescent device according to claim 1, further comprising a dielectric layer disposed between the layer of electroluminescent material and the ground plane, wherein the ceramic oxide host compound comprises two or more metal oxide

compounds and wherein at least one of the metal oxide compounds is a first metal oxide compound selected from Ga_2O_3, ZrO_2, GeO_2, SnO_2, and PbO_2 and at least one other metal oxide compound different from the first metal oxide compound is selected from ZrO_2, GeO_2, SnO_2, Al_2O_3, Y_2O_3, ZnO, MgO, CaO, SrO, and La_2O_3, wherein the metal oxide dopant compound is selected from MnO_2, SnO_2, HfO_2, Al_2O_3, Dy_2O_3, As_2O_3, Eu_2O_3, and mixtures thereof, and the barrier layer is a metal oxide.

42. The electroluminescent device according to claim 41, wherein the dielectric layer comprises a titanate compound.

43. The electroluminescent device according to claim 41, wherein the barrier layer is tantalum oxide, alumina, zirconia, calcium oxide, magnesium oxide, or a rare earth oxide.

44. An electroluminescent compound which emits non-thermal light in response to an electric field comprising:

a multicomponent ceramic oxide host compound comprising two or more metal oxide compounds, wherein a first metal oxide compound is selected from ZrO_2, Ga_2O_3, GeO_2, SnO_2, and PbO_2, and a second metal oxide compound different from the first metal oxide compound is selected from ZrO_2, GeO_2, SnO_2, Al_2O_3, Y_2O_3, ZnO, MgO, CaO, Ga_2O_3, SrO, and La_2O_3; and

one or more dopant compounds which form a one phase solid solution with the ceramic oxide host compound, wherein the one or more dopant compounds are selected to be different than the ceramic oxide host and are metal oxides selected from MnO_2, SnO_2, HfO_2, Al_2O_3, Dy_2O_3, As_2O_3, and Eu_2O_3, and mixtures thereof.

45. The electroluminescent compound according to claim 44, wherein the ceramic oxide host compound comprises GeO_2 and one or more oxides selected from ZrO_2, Al_2O_3, Y_2O_3, ZnO, MgO, CaO, and SrO.

46. The electroluminescent compound according to claim 44, wherein the ceramic oxide host compound comprises ZrO_2 and one or more oxides selected from GeO_2, and Ga_2O_3, and SrO.

47. The electroluminescent compound according to claim 44, wherein the ceramic oxide host compound comprises SiO_2 and one or more oxides selected from ZnO and Y_2O_3.

48. The electroluminescent compound according to claim 44, wherein the ceramic oxide host compound comprises Ga_2O_3 and one or more oxides selected from ZrO_2, SrO, and La_2O_3.